

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 32533 6/15/2001]

[Docket No. 2000-NE-22-AD; Amendment 39-12261; AD 2001-12-06]

RIN 2120-AA64

Airworthiness Directives; General Electric Company (GE) CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 Turbofan Engines.

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), that is applicable to GE CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines with No. 5 bearing rotating air seal part number (P/N) 4019T60G01 installed. This amendment requires initial and repetitive checks of the magnetic chip detector indicators, which are located in the lubrication system for the engine bearings, and installation of an improved No. 5 bearing rotating air seal as a terminating action. This amendment is prompted by a report of the failure of a No. 5 bearing rotating air seal that led to a fire in the cavity of the low pressure turbine (LPT), overtemperature of the LPT turbine disk, and excessive turbine disk growth. The actions specified by this AD are intended to prevent No.5 bearing rotating air seal failures and possible uncontained engine failures.

DATES: Effective date July 20, 2001.

ADDRESSES: Information regarding this action may be examined at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

FOR FURTHER INFORMATION CONTACT: Eugene Triozzi, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington MA 01803-5299; telephone: (781) 238-7148, fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that is applicable to GE CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 engines was published in the **Federal Register** on February 27, 2001 (66 FR 12443). That action proposed to require initial and repetitive checks of magnetic chip detector indicators, which are located in the lubrication system for the engine bearings, in order to detect No. 5 bearing roller distress before air seal failure, and installation of a new modified design No. 5 bearing rotating air seal, P/N 4019T60G03, as terminating action for the repetitive inspection requirements of this AD.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Requests to Eliminate Repetitive Inspection Requirements

Three commenters request that the repetitive inspection requirements be eliminated from the AD. The commenters state that they are already performing the inspections based upon recommendations from the manufacturer. The FAA does not agree. Although these individual commenters may already be complying with the proposed requirements, the FAA has determined that an unsafe condition exists that warrants requiring all operators to conduct mandatory repetitive inspections, until the terminating actions

are accomplished. Therefore, the FAA must issue an AD to require repetitive inspections, regardless of the manufacturer's recommendations.

Requests to Change Compliance Time for Initial Inspections

Two commenters request that the time to comply with the initial inspection requirements be increased from 30 hours after the effective date of the proposed AD to 100 hours after the effective date, for CF34-1A, -3A, and -3A2 engines. The commenters feel that a 100-hour initial inspection provides an acceptable level of safety based on risk analysis conducted by the type certificate holder, and will reduce the economic burden on operators. The FAA agrees. Further review of risk analysis data supports that an acceptable level of safety would result with a 100-hour initial inspection threshold rather than a 30-hour initial inspection threshold. Therefore, the FAA has changed the initial inspection compliance time for CF34-1A, -3A, and -3A2 engines to "100 flight hours from the effective date of this AD."

Requests to Change Compliance Time for CF34-3B Repetitive Inspections

One commenter requests that the time to comply with the repetitive inspection requirements be increased from an interval of 30 hours to an interval of 100 hours for CF34-3B engines. The commenter states that the extended time will reduce the economic impact on the commenter due to additional maintenance requirements, and make the CF34-3B inspection requirements the same as the CF34-3A inspection requirements. The FAA does not agree. Risk analysis data used by the FAA to establish the AD requirements shows that an unacceptable level of safety would result from increasing the inspection interval from 30 flight hours to 100 flight hours for the CF34-3B engine fleet.

Requests to Clarify Who May Perform Maintenance Actions

One commenter requests that the wording of the AD be revised to reflect that the pilot may do the check, but a maintenance technician must do any required maintenance actions. Additionally, the same commenter and another commenter, request that the AD be revised to clarify that on CF34-1A, -3A, and -3A2 turbofan engines, chip detector checks are maintenance actions and are not to be performed by flight crew. CF34-1A, -3A, and -3A2 turbofan engine models have individual chip detectors. Those chip detectors are checked with an ohmmeter, unlike the CF34-3A1, -3B, and -3B1 engine models, which have a single master chip detector with a white triangle or illuminated indicator. The FAA agrees. The intent of the AD is to allow chip detector indicator checks to be done by the pilot for engine models with the master chip detector installation. Although the proposed AD would not have authorized the pilot to do any task beyond a visual check of the indicator, the FAA agrees that additional clarity is needed. Therefore, the FAA has revised paragraph (b) to clarify the requirements.

Requests to Allow Pilot to "Sign-off" 30 Flight Hour Magnetic Chip Detector Check

Two commenters request that the pilot be allowed to sign-off the 30-flight hour magnetic chip detector check. The commenters feel that the check is a very simple task on the CF34-3A1, -3B, and -3B1 engine installations. The chip detector panel location is accessed by aircrews on a daily basis in the normal course of their duties of determining and monitoring engine oil levels. The chip detector check that is required by paragraph (b) of the proposed AD is a simple go / no-go check and could be performed by an aircrew. The FAA agrees, but no revisions to the AD are needed as this is explicitly provided for in paragraph (b) of the proposed AD.

Requests to Increase the Compliance Time for Mandatory Terminating Action

One commenter requests that the compliance time for the mandatory terminating action for the CF34-3A1, -3B, and -3B1 be increased from 15,000 cycles-in-service (CIS) after the effective date of the proposed AD, to 18,000 CIS after the effective date of the proposed AD. The commenter requests the change in anticipation of future rotating part life limit increases, and to coincide with scheduled shop visits in the future if life limits are increased. The FAA does not agree. The level of safety provided by the requirements of the proposed AD were established based upon compliance within 15,000 CIS after the effective date to the AD, and no additional data was provided by the commenter to show that an acceptable level of safety would be provided if the terminating action deadline were extended. In addition, further review with the type certificate holder indicated that future life limit increases are not anticipated for all affected engine models.

Request for Clarification of the Mandatory Terminating Action Compliance Time

The same commenter requests that the compliance time for the mandatory terminating action be revised to indicate terminating actions are not required upon reaching 15,000 cycles-since-new (CSN), but instead that terminating actions are required after accumulating 15,000 additional CIS after the effective date of this AD. The commenter states that one operator has misinterpreted the existing wording as a hard limit of 15,000 CSN. The FAA agrees. The intent of the proposed AD was to require terminating action within 15,000 CIS accumulated after the effective date of the AD, and was not intended to impose a 15,000 CSN limit. The FAA has changed the wording in Table 2 accordingly.

Request to Incorporate Chip Detector Check as Part of the Flight Checklist

One commenter requests that the chip detector check be done as part of the aircrew normal acceptance of terminating flight checklist. The commenter feels that precedence for aircrews performing simple go / no-go checks as part of an approved checklist can be found in AD 92-16-51 for the EMB120. The FAA partially agrees. The FAA agrees that the engine chip detector check can be performed by the aircrew, which is provided for in paragraph (b) of the AD. However, as further stated in paragraph (b), 91.417(a)(2)(v) of the Federal Aviation Regulations [14 CFR 91.417(a)(2)(v)] requires that for AD actions involving recurring inspections, records must be maintained, including the time and date when the next action is required. Accordingly, although the chip detector checks may be included in the aircrew daily checklist, this would not obviate the need for the operator to record each AD accomplishment, and no changes to the proposed rule are required.

Request for a New Paragraph to Require a Maintenance Operational Check of the Engine Master Chip Detector

One commenter requests that a new paragraph be added to the proposed AD to require a maintenance operational check (BITE) of the engine master chip detector. The check would be required to be done at the air carriers' first scheduled maintenance opportunity, but not to exceed seven calendar days. The commenter feels that this check would provide an equivalent of better level of safety than that proposed in the AD. The FAA does not agree. The FAA has no data that mandating operational checks of the engine master chip detector system would improve the level of safety provided by the proposed rule as currently written.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Economic Impact

There are about 1,650 engines of the affected design in the worldwide fleet. The FAA estimates that 1,075 engines installed on aircraft of U.S. registry would be affected by this proposed AD, that it would take about 0.5 work hours per engine to do the proposed checks, and that the average labor rate is \$60 per work hour. Based on these figures, the total proposed AD cost impact on U.S. operators, for the initial check is estimated to be \$32,250. In addition, the replacement air seal cost is approximately \$2,400 per unit, so the total proposed material cost impact on U.S. operators is estimated to be \$2,580,000. No additional labor is required for air seal replacement, as this will occur during normal exposure at shop visit. Based on these figures, the total proposed AD cost impact on U.S. operators is estimated to be \$2,612,250.

Regulatory Impact

This proposal does not have federalism implications, as defined in Executive Order 13132, because it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Accordingly, the FAA has not consulted with state authorities prior to publication of this proposal.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the

criteria of the Regulatory Flexibility Act. A copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption “ADDRESSES.”

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "av-info.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2001-12-06 General Electric Company: Amendment 39-12261. Docket No. 2000-NE-22-AD.

Applicability

This airworthiness directive (AD) is applicable to CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines with No. 5 bearing rotating air seal, part number (P/N) 4019T60G01 installed. These engines are installed on but not limited to Bombardier Inc. (Canadair) Model CL-600-2A12, Model CL-600-2B16, and Model CL-600-2B19, airplanes.

Note 1: This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (f) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance

Compliance with this AD is required as indicated, unless already done.

To prevent No.5 bearing rotating air seal failures and possible uncontained engine failures, do the following:

Magnetic Chip Detector Indicator Check

(a) Check magnetic chip detector indicators in accordance with the following Table 1:

Table 1. Initial and Repetitive Checks.

Engine Model	Initial check within:	Then within every:
(1) CF34-3A1, -3B1, and -3B.	30 flight hours or 3 calendar days, whichever is greater, from effective date of this AD.	30 flight hours time-since-last-inspected (TSLI) or 3 calendar days TSLI, whichever is greater.
(2) CF34-1A, -3A, and -3A2.	100 flight hours, from the effective date of this AD.	100 flight hours TSLI.

Chip Detector Indicator Check, Authorization

(b) For CF34-3A1, -3B, and -3B1 turbofan engine models, notwithstanding section 43.3 of the Federal Aviation Regulations (14 CFR 43.3), the checks required by paragraph (a) of this AD, may be performed by an aircrew member holding at least a private pilot certificate. The operator of the airplane must record completion of the checks in the airplane records to show compliance with this AD, in accordance with sections 43.9 and 91.417(a)(2)(v) of the Federal Aviation Regulations [14 CFR part 43.9]

and 14 CFR part 91.417(a)(2)(v)]. The records must be maintained as required by the applicable Federal Aviation Regulation.

Detection of Chips

(c) If a chip detection is indicated, remove the chip detector and disposition the chip, and the engine, using the engine maintenance manual procedures.

Replacement of Air Seal

(d) Remove No.5 bearing rotating air seal P/N 4019T60G01, and replace with air seal P/N 4019T60G03, in accordance with the following Table 2:

Table 2. Compliance Times for Replacement of Air Seal.

Engine Model	Replace At
(1) CF34-3A1, -3B1, and -3B.	Next shop visit when HPT is exposed, but do not exceed 15,000 cycles-in-service from the effective date of this AD.
(2) CF34-1A, -3A, and -3A2.	Next 3000-hour hot section inspection or at next 6,000-hour overhaul, whichever occurs first, but not to exceed 3,000 hours time-in-service from the effective date of this AD.

Mandatory Terminating Action

(e) Replacement of air seal P/N 4019T60G01 with air seal P/N 4019T60G03 constitutes terminating action for the repetitive inspection requirements specified in paragraph (a) of this AD.

Alternative Methods of Compliance

(f) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators shall submit their request through an appropriate Federal Aviation Administration (FAA) Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

Special Flight Permits

(g) Special flight permits may be issued in accordance §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be accomplished.

Effective Date of This AD

(h) This amendment becomes effective on July 20, 2001.

FOR FURTHER INFORMATION CONTACT: Eugene Triozzi, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington MA 01803-5299; telephone: (781) 238-7148, fax: (781) 238-7199.

Issued in Burlington, Massachusetts, on June 5, 2001.

Francis A. Favara, Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.